

# BIOLOGY, BA AND BS

Both the BA and BS degrees in Biology are designed to meet the needs of students expressing an interest in general biology and preparing them to be competitive as applicants to a variety of graduate programs, professional schools or immediately in the job market.

## Student Learning Outcomes

Biology majors at Washburn University, upon completion of the program will be able to:

- Describe and explain fundamental biological concepts in cell biology, genetics, organismal biology, structure and function relationships, ecology, and evolution.
- Explain and utilize the scientific method.
- Employ and demonstrate a variety of scientific techniques in the core biology disciplines of zoology, microbiology, genetics, and undergraduate research.
- Analyze and interpret scientific data.
- Evaluate scientific information and use oral and written presentation skills to formulate explanations of data in a professional manner.

## Degree Requirements

### Biology, BA

In addition to the requirements stated below, students must complete 34-35 hours of General Education (<https://catalog.washburn.edu/undergraduate/programs-degrees-graduation-requirements/general-education-requirements/>), all requirements for a Bachelor of Arts (<https://catalog.washburn.edu/undergraduate/college-arts-sciences/degrees/bachelor-arts/>) degree, and any additional hours needed to reach the minimum 120 credit hours required for graduation. Some of the courses below may also fulfill general education or other degree requirements. Please see your advisor for more information.

Code	Title	Hours
<b>Required Courses Inside Department</b>		
BI 192	General Cellular Biology	5
BI 194	General Organismal Biology	5
BI 301	General Microbiology	4
BI 333	General Genetics	4
BI 390	Biology Seminar (Capstone Course)	1
BI 395	Research in Biology (Capstone Course)	1
Additional BI courses <sup>1</sup>		18
Subtotal		38
<b>Required Courses Outside Department</b>		
CH 151 & CH 152	Fundamentals of Chemistry I and Fundamentals of Chemistry II	10
CH 340 & CH 342	Organic Chemistry I and Organic Chemistry Lab I	5
MA 116	College Algebra	3
MA 140 or MA 151	Statistics or Calculus & Analytic Geometry I	3-5
Select one of the following physics sequences:		10
PS 261 & PS 262	College Physics I and College Physics II	

PS 281 & PS 282	General Physics I and General Physics II	
Subtotal		31-33
<b>Total Hours</b>		<b>69-71</b>

<sup>1</sup> 15 of these 18 hours must be upper division BI courses

## Degree Requirements

### Biology, BS

In addition to the requirements stated below, students must complete 34-35 hours of General Education (<https://catalog.washburn.edu/undergraduate/programs-degrees-graduation-requirements/general-education-requirements/>), all requirements for a Bachelor of Science (<https://catalog.washburn.edu/undergraduate/college-arts-sciences/degrees/bachelor-science/>) degree, and any additional hours needed to reach the minimum 120 credit hours required for graduation. Some of the courses below may also fulfill general education or other degree requirements. Please see your advisor for more information.

Code	Title	Hours
<b>Required Courses Inside Department</b>		
BI 192	General Cellular Biology	5
BI 194	General Organismal Biology	5
BI 301	General Microbiology	4
BI 333	General Genetics	4
BI 390	Biology Seminar (Capstone Course)	1
BI 395	Research in Biology (Capstone Course)	1
Additional BI courses <sup>1</sup>		24
Subtotal		44
<b>Required Courses Outside Department</b>		
CH 151 & CH 152	Fundamentals of Chemistry I and Fundamentals of Chemistry II	10
CH 340 & CH 342	Organic Chemistry I and Organic Chemistry Lab I	5
MA 116	College Algebra	3
MA 140 or MA 151	Statistics or Calculus & Analytic Geometry I	3-5
Select one of the following physics sequences:		10
PS 261 & PS 262	College Physics I and College Physics II	
PS 281 & PS 282	General Physics I and General Physics II	
Subtotal		31-33
<b>Total Hours</b>		<b>75-77</b>

<sup>1</sup> 21 of these 24 hours must be upper division BI courses